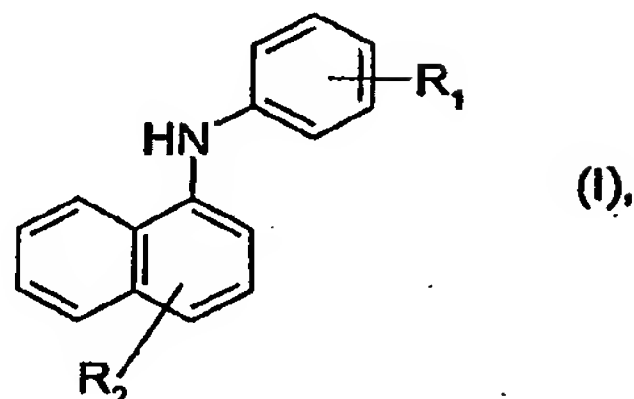


## Claims

1. A composition which comprises

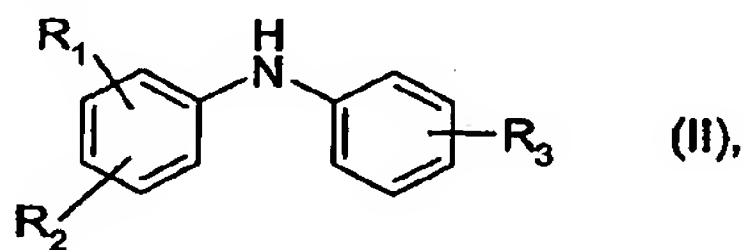
A) An additive mixture that essentially consists of

a) At least one compound:



10 wherein one of  $R_1$  and  $R_2$  independently of one another represents hydrogen or a hydrocarbon radical selected from the group consisting of branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl and the other one represents a hydrocarbon radical selected from the group consisting of branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl; and

b) At least one compound:



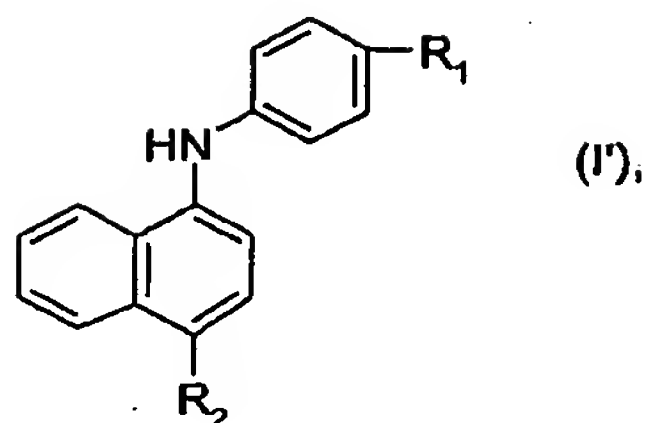
wherein  $R_1$  and  $R_2$  independently of one another represent hydrogen or a hydrocarbon radical selected from the group consisting of tert-butyl, branched octyl, branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl; and  $R_3$  represents a hydrocarbon radical selected from the group consisting of tert-butyl, branched octyl, branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl; and

B) A composition of matter susceptible to oxidative, thermal or light induced degradation.

20 2. A composition which comprises

B) An additive mixture which essentially consists of

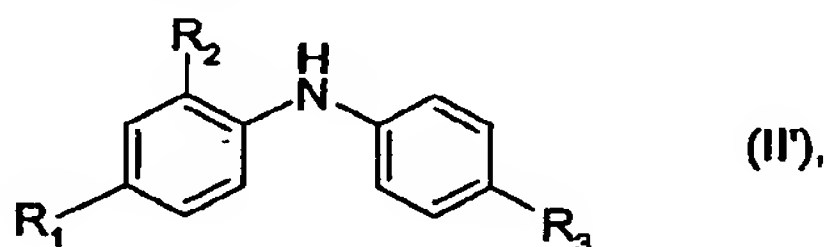
a) At least one compound:



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wherein one of  $R_1$  and  $R_2$  independently of one another represents hydrogen or a hydrocarbon radical selected from the group consisting of branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl and the other one represents a hydrocarbon radical selected from the group consisting of branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl or an isomer thereof; and

b) At least one compound:



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wherein  $R_1$  and  $R_2$  independently of one another represent hydrogen or a hydrocarbon radical selected from the group consisting of tert-butyl, branched octyl, branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl; and  $R_3$  represents a hydrocarbon radical selected from the group consisting of tert-butyl, branched octyl, branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl or an isomer thereof; and

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C) A composition of matter susceptible to oxidative, thermal or light induced degradation.

3. A composition according to claim 2, which comprises an additive mixture that essentially consists of

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a) At least one compound (I'), wherein one of  $R_1$  and  $R_2$  independently of one another represents hydrogen or a hydrocarbon radical selected from the group consisting of 2,4-dimethyl-2-heptyl, 1-phenylethyl and 2-phenyl-2-propyl and the other one represents a hydrocarbon radical selected from the group consisting of 2,4-dimethyl-2-heptyl, 1-phenylethyl and 2-phenyl-2-propyl; and

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b) At least one compound (II'), wherein  $R_1$  and  $R_2$  independently of one another represent hydrogen or a hydrocarbon radical selected from the group con-

sisting of tert-butyl, 2,4,4-trimethyl-2-pentyl, 2,4-dimethyl-2-heptyl, 1-phenylethyl and 2-phenyl-2-propyl; and  $R_3$  represents a hydrocarbon radical selected from the group consisting of tert-butyl, 2,4,4-trimethyl-2-pentyl, 2,4-dimethyl-2-heptyl, 1-phenylethyl and 2-phenyl-2-propyl.

- 5      4. A composition according to claim 2, which comprises an additive mixture that essentially consists of
- 10              c) At least one compound (I'), wherein one of  $R_1$  and  $R_2$  independently of one another represent hydrogen or a hydrocarbon radical selected from the group consisting of 2,4-dimethyl-2-heptyl and 2-phenyl-2-propyl and the other one represents a hydrocarbon radical selected from the group consisting of 2,4-dimethyl-2-heptyl and 2-phenyl-2-propyl; and
- 15              d) At least one compound (II'), wherein  $R_1$  and  $R_2$  independently of one another represent hydrogen or a hydrocarbon radical selected from the group consisting of tert-butyl, 2,4,4-trimethylpent-2-yl, 2,4-dimethyl-2-heptyl and 2-phenyl-2-propyl; and  $R_3$  represents a hydrocarbon radical selected from the group consisting of tert-butyl, 2,4,4-trimethylpent-2-yl, 2,4-dimethyl-2-heptyl and 2-phenyl-2-propyl.
- 20      5. A composition according to claim 2, which comprises an additive mixture that essentially consists of
- 25              c) At least one compound (I'), wherein one of  $R_1$  and  $R_2$  independently of one another represents hydrogen or a hydrocarbon radical selected from the group consisting of 2,4-dimethyl-2-heptyl and 2-phenyl-2-propyl and the other one represents a hydrocarbon radical selected from the group consisting of 2,4-dimethyl-2-heptyl and 2-phenyl-2-propyl; and
- 30              d) At least one compound (II'), wherein  $R_1$  and  $R_2$  independently of one another represent hydrogen or a hydrocarbon radical selected from the group consisting of 2,4-dimethyl-2-heptyl and 2-phenyl-2-propyl; and  $R_3$  represents a hydrocarbon radical selected from the group consisting of 2,4-dimethyl-2-heptyl and 2-phenyl-2-propyl.
6. A composition according to claims 1 or 2, wherein the composition of matter of component B) susceptible to oxidative, thermal and light induced degradation is a natural, semi-synthetic or synthetic polymer or a functional fluid.

7. A composition according to claim 6, wherein the functional fluid is a lubricant, machining fluid or a hydraulic fluid.
8. A composition according to claims 1 or 2, which additionally contains conventional additives suitable for protecting a composition of matter susceptible to oxidative, thermal and light induced degradation.
9. An additive mixture that essentially consists of
  - a) At least one compound (I), wherein one of  $R_1$  and  $R_2$  independently of one another represents hydrogen or a hydrocarbon radical selected from the group consisting of branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl and the other one represents a hydrocarbon radical selected from the group consisting of branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl; and
  - b) At least one compound (II), wherein  $R_1$  and  $R_2$  independently of one another represent hydrogen or a hydrocarbon radical selected from the group consisting of tert-butyl, branched octyl, branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl; and  $R_3$  represents a hydrocarbon radical selected from the group consisting of tert-butyl, branched octyl, branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl
10. The product obtainable by alkylating a mixture of N- $\alpha$ -naphthyl-N-phenylamine (PANA) and diphenylamine with nonene or a mixture of isomeric nonenes in the presence of  $\alpha$ -methylstyrene and an acidic catalyst.
11. The product obtainable by alkylating N- $\alpha$ -naphthyl-N-phenylamine (PANA) with nonene or a mixture of isomeric nonenes in the presence of  $\alpha$ -methylstyrene and an acidic catalyst.
12. A process for stabilizing composition of matter susceptible to oxidative, thermal and/or light induced degradation, which comprises adding or applying to the composition of matter the composition according to claim 1 as a stabiliser.
13. A process for preparing the composition according to claim 1, which comprises alkylating N- $\alpha$ -naphthyl-N-phenylamine (PANA) or a mixture of PANA and diphenylamine with nonene or a mixture of isomeric nonenes in the presence of styrene or  $\alpha$ -methylstyrene and an acidic catalyst and adding to the reaction mixture a compound (II) wherein  $R_1$  and  $R_2$  independently of one another represent hydrogen or a hydrocarbon radical selected

from the group consisting of tert-butyl and branched octyl and  $R_3$  represents branched octyl.

14. A process for preparing a composition according to claim 1, which comprises alkylating N- $\alpha$ -naphthyl-N-phenylamine (PANA) with nonene or a mixture of isomeric nonenes in the presence of  $\alpha$ -methylstyrene and an acidic catalyst and adding to the reaction mixture a compound (II) or a mixture of the compound (II), wherein  $R_1$  and  $R_2$  independently of one another represent hydrogen or a hydrocarbon radical selected from the group consisting of tert-butyl, branched octyl and branched nonyl and  $R_3$  represents a hydrocarbon radical selected from the group consisting of tert-butyl, branched octyl and branched nonyl.
15. A process for the preparation of a mixture comprising at least one compound (I), wherein one of  $R_1$  and  $R_2$  independently of one another represents hydrogen or a hydrocarbon radical selected from the group consisting of branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl and the other one represents a hydrocarbon radical selected from the group consisting of branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl, which comprises alkylating N- $\alpha$ -naphthyl-N-phenylamine (PANA) with nonene or a mixture of isomeric nonenes in the presence of styrene or  $\alpha$ -methylstyrene and an acidic catalyst.
16. A process for the preparation of a mixture comprising at least one compound (I), wherein one of  $R_1$  and  $R_2$  independently of one another represents hydrogen or a hydrocarbon radical selected from the group consisting of branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl and the other one represents a hydrocarbon radical selected from the group consisting of branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl; and at least one compound (II), wherein  $R_1$  and  $R_2$  independently of one another represent hydrogen or a hydrocarbon radical selected from the group consisting of branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl; and  $R_3$  represents a hydrocarbon radical selected from the group consisting of branched nonyl, 1-phenylethyl and 2-phenyl-2-propyl, which comprises alkylating N- $\alpha$ -naphthyl-N-phenylamine (PANA) or a mixture of N- $\alpha$ -naphthyl-N-phenylamine (PANA) and diphenylamine with nonene or a mixture of isomeric nonenes in the presence of styrene or  $\alpha$ -methylstyrene and an acidic catalyst.
17. A process for the preparation of a mixture comprising at least one compound (I), wherein one of  $R_1$  and  $R_2$  independently of one another represents hydrogen or a hydrocarbon radical selected from the group consisting of branched nonyl and 2-phenyl-2-propyl and

the other one represents a hydrocarbon radical selected from the group consisting of branched nonyl and 2-phenyl-2-propyl, which comprises alkylating N- $\alpha$ -naphthyl-N-phenylamine (PANA) with nonene or a mixture of isomeric nonenes in the presence of  $\alpha$ -methylstyrene and an acidic catalyst.

- 5 18. A process for the preparation of a mixture comprising at least one compound (I), wherein  
one of R<sub>1</sub> and R<sub>2</sub> independently of one another represents hydrogen or a hydrocarbon  
radical selected from the group consisting of branched nonyl and 2-phenyl-2-propyl and  
the other one represents a hydrocarbon radical selected from the group consisting of  
branched nonyl and 2-phenyl-2-propyl; and at least one compound (II), wherein R<sub>1</sub> and  
10 R<sub>2</sub> independently of one another represent hydrogen or a hydrocarbon radical selected  
from the group consisting of branched nonyl and 2-phenyl-2-propyl; and R<sub>3</sub> represents a  
hydrocarbon radical selected from the group consisting of branched nonyl and 2-phenyl-  
2-propyl, which comprises alkylating N- $\alpha$ -naphthyl-N-phenylamine (PANA) or diphenyl-  
amine with nonene or a mixture of isomeric nonenes in the presence of  $\alpha$ -methylstyrene  
15 and an acidic catalyst.